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Giese

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(54) **PORTABLE DRILL PRESS**

(71) Applicant: **Jeffry Mark Giese**, Stevens Point, WI (US)

(72) Inventor: **Jeffry Mark Giese**, Stevens Point, WI (US)

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(51) **Int. Cl.**

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B27C 3/08	(2006.01)
B25H 1/10	(2006.01)
B23B 45/00	(2006.01)
B23B 47/26	(2006.01)

(52) **U.S. Cl.**
CPC ***B23B 39/006*** (2013.01); ***B25H 1/0064*** (2013.01); ***B25H 1/10*** (2013.01); ***B27C 3/08*** (2013.01); *B23B 45/00* (2013.01); *B23B 47/26* (2013.01)

(58) **Field of Classification Search**
CPC B23B 39/006; B23B 47/26; B23B 45/00; B23B 47/287; B27C 3/08; B25H 1/0064; B25H 1/10; Y10T 408/5627; Y10T 408/5617
USPC 408/712
See application file for complete search history.

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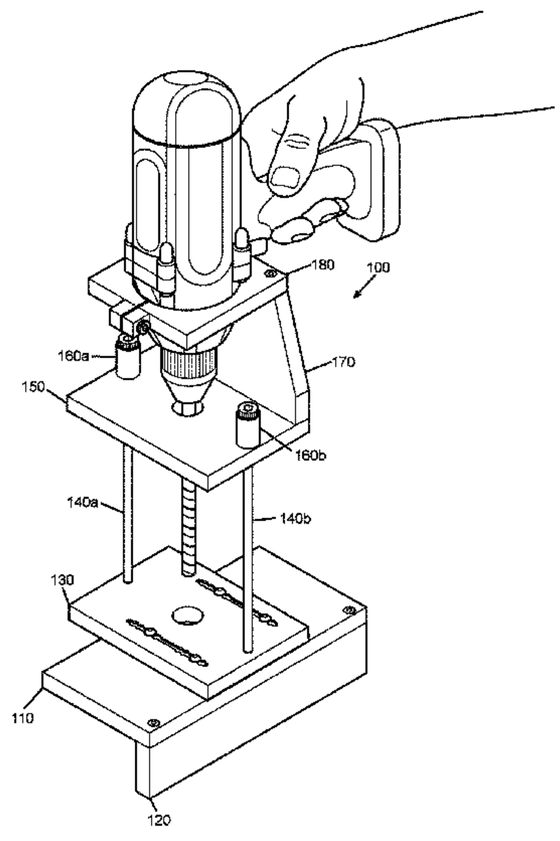
Primary Examiner — Daniel Howell
Assistant Examiner — Paul M Janeski
(74) *Attorney, Agent, or Firm* — Charles S. Sara; Elizabeth L. Neal; DeWitt LLP

(57) **ABSTRACT**

The present invention is directed to a portable drill press apparatus for drilling a bore perfectly perpendicular to a surface. This apparatus includes a horizontal base plate having an enlarged aperture and a horizontal adjustment plate having an adjustment plate aperture. The adjustment plate is parallel to and releasably connected to the base plate by a plurality of releasable fasteners extending through a plurality of adjustment slots in the adjustment plate. A plurality of guide bolts extends vertically from the adjustment plate through a horizontal guide plate, the guide plate being parallel to the adjustment plate and slidable along the plurality of guide bolts. The guide plate has a guide plate aperture. A vertical back plate interconnects the guide plate and at least one drill clamp, the guide plate and drill clamp extending parallel to each other. The drill clamp has a variably-sized drill aperture for clamping a portable drill.

18 Claims, 14 Drawing Sheets



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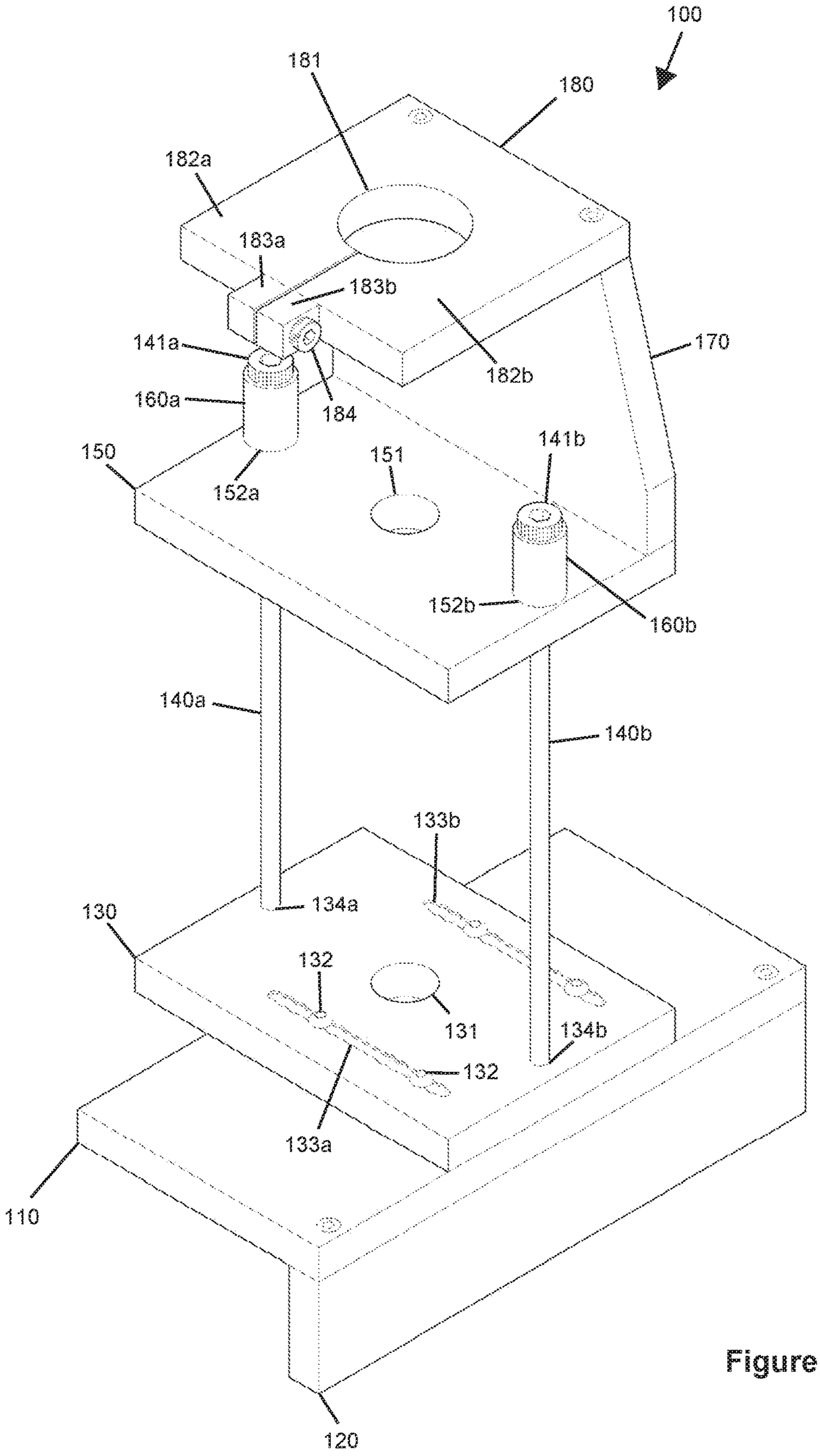
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180
182a
183a
183b
141a
182b
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151
141b
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152b
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140b
133b
134a
130
132
131
134b
132
133a
110
120

Figure 1a

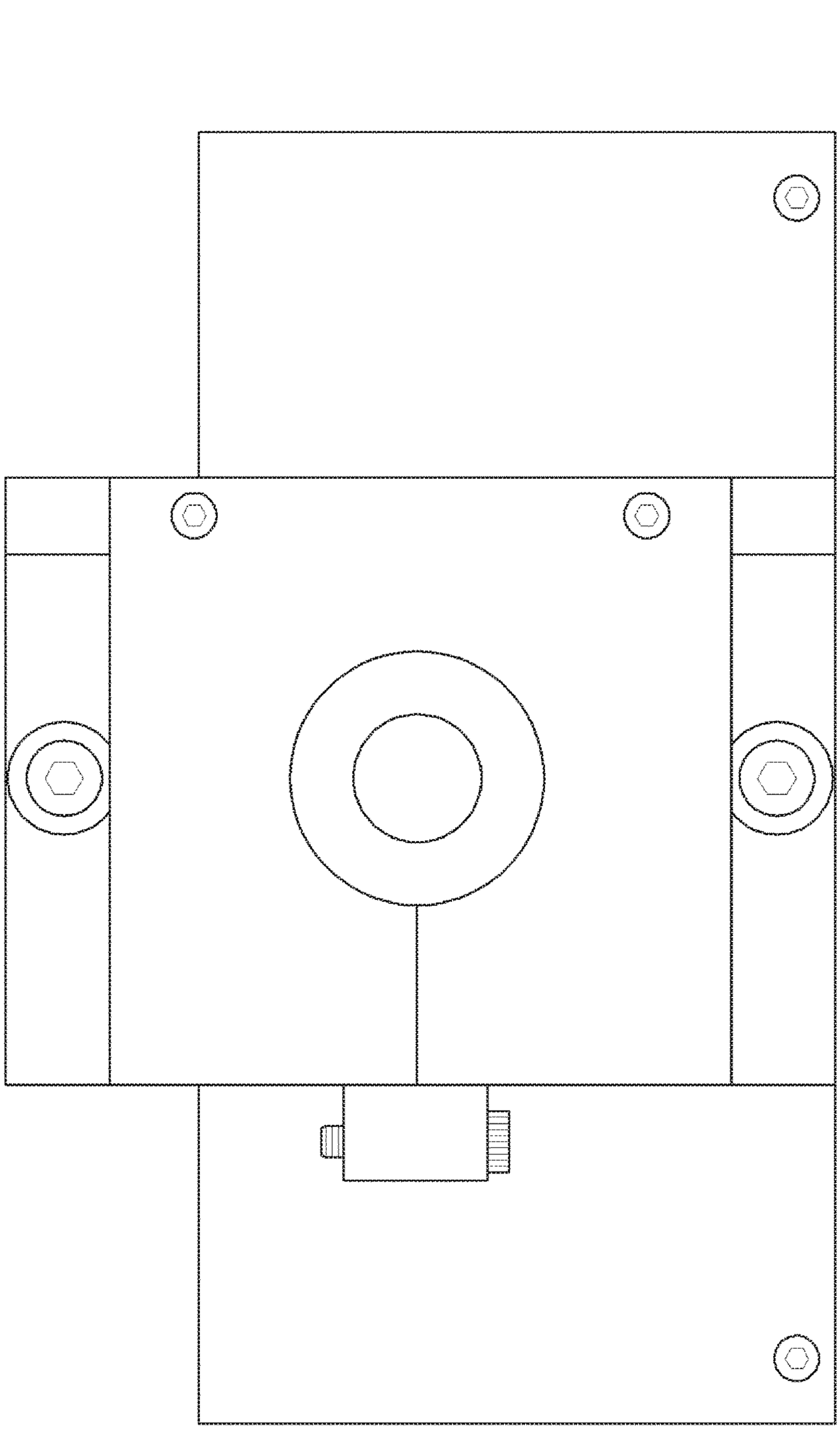


Figure 1b

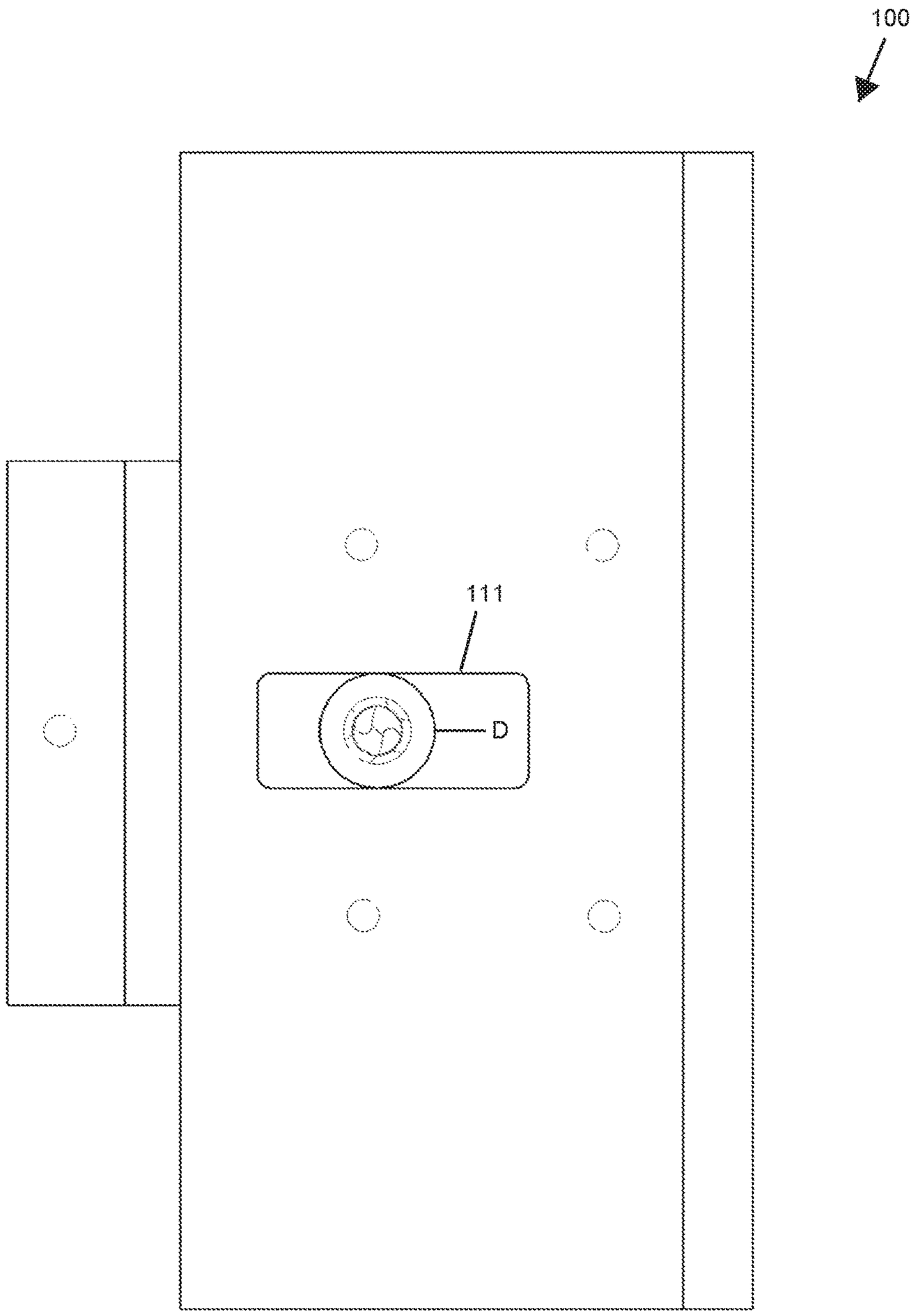


Figure 1c

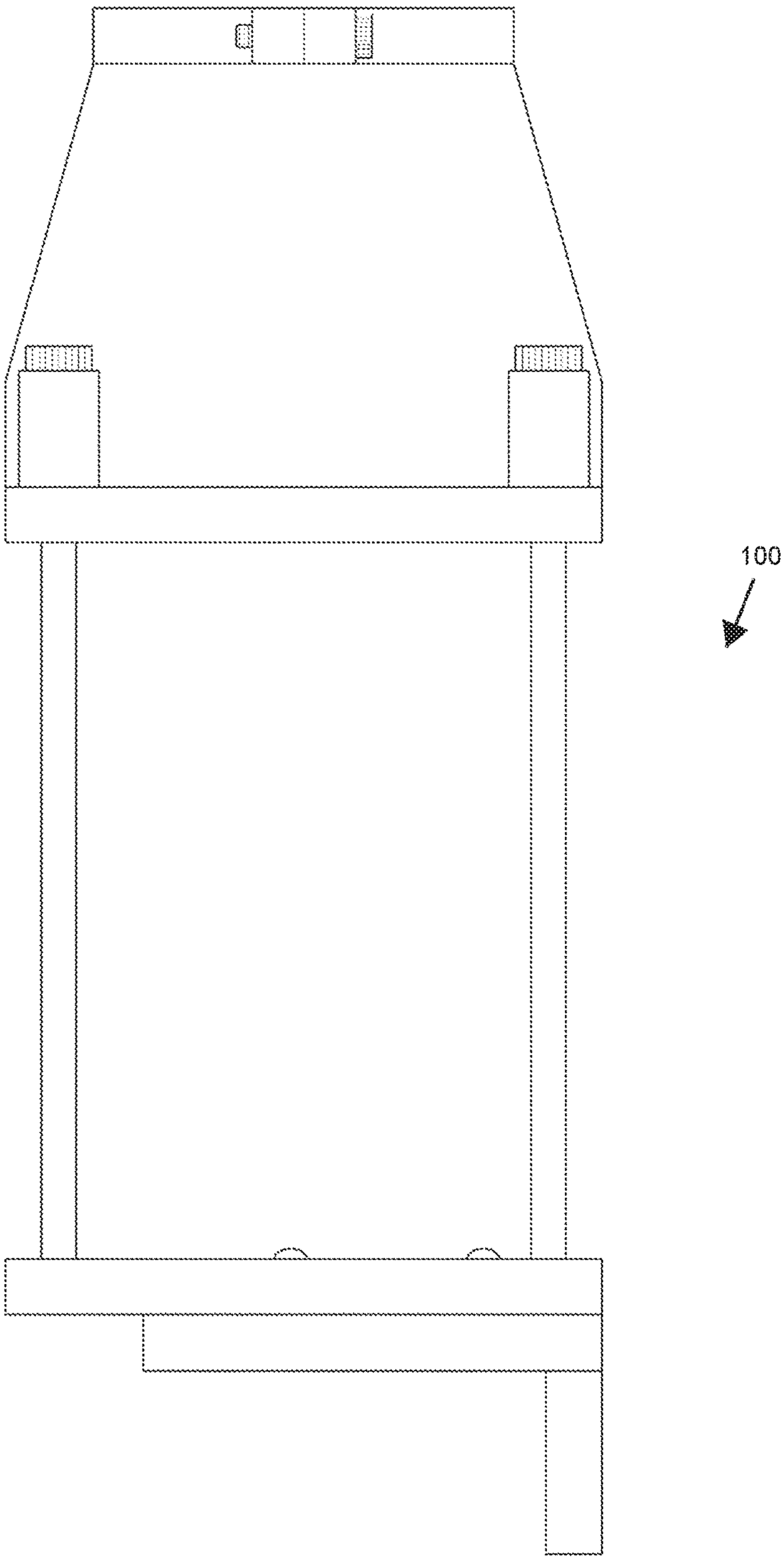


Figure 1d

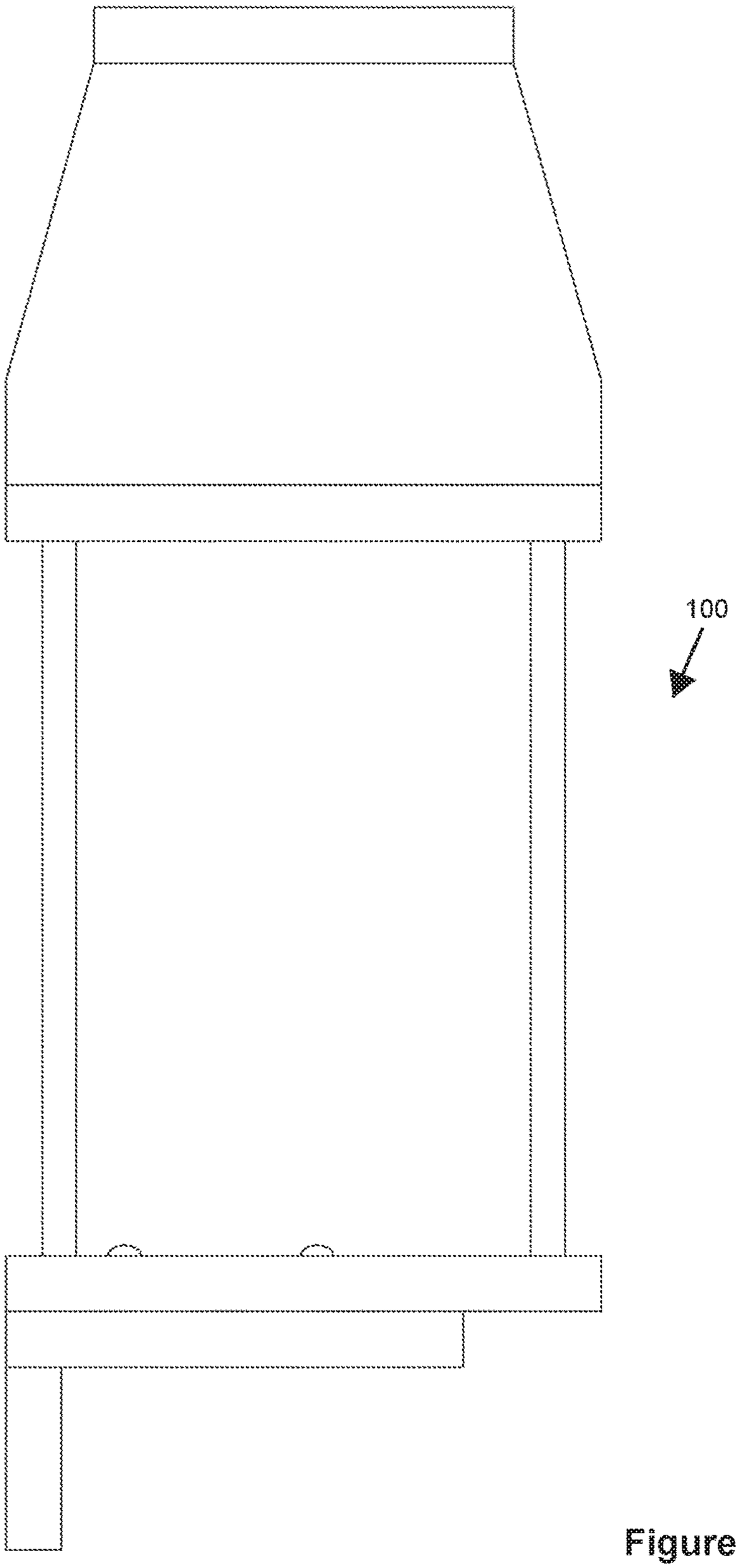
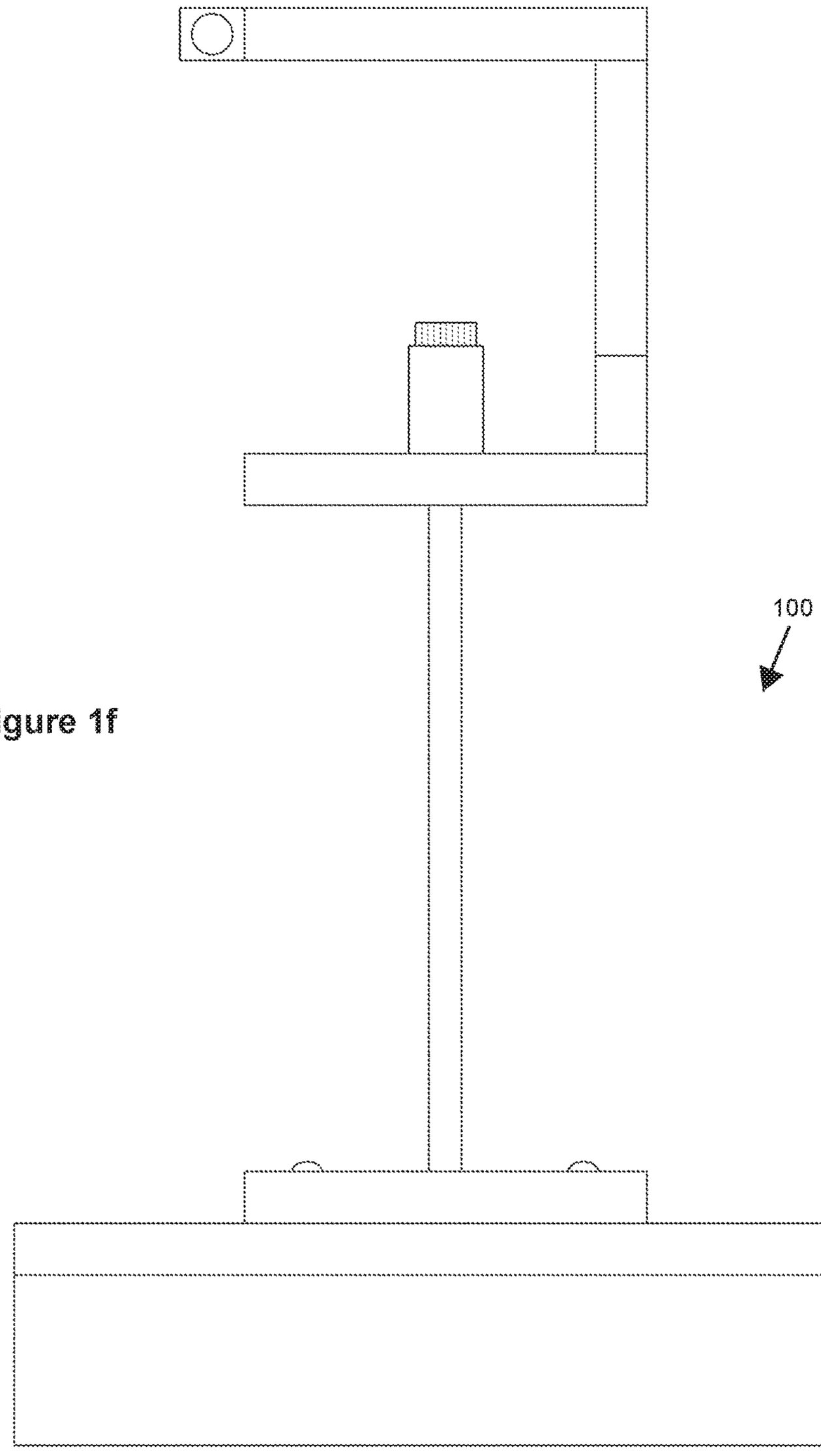


Figure 1e



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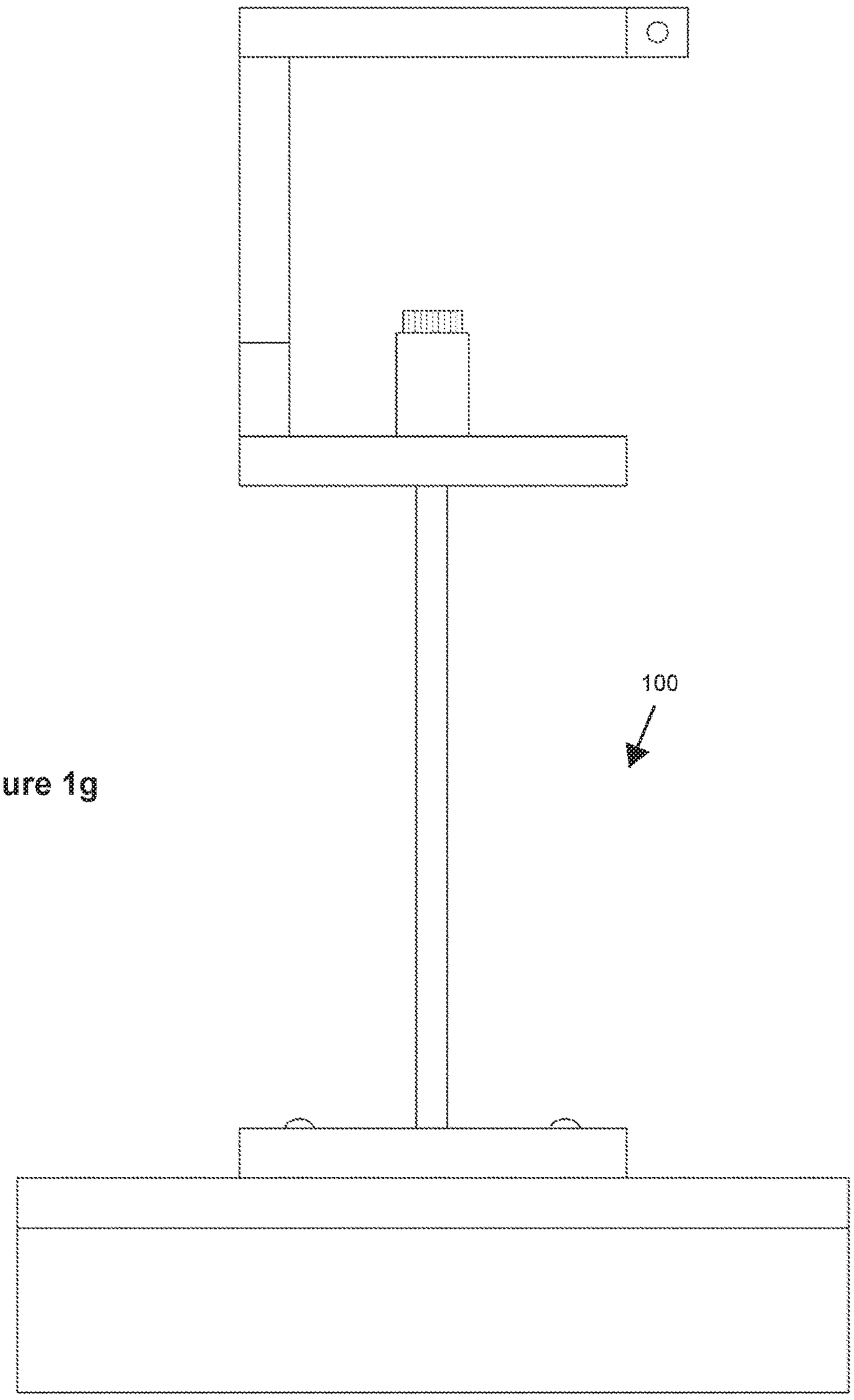
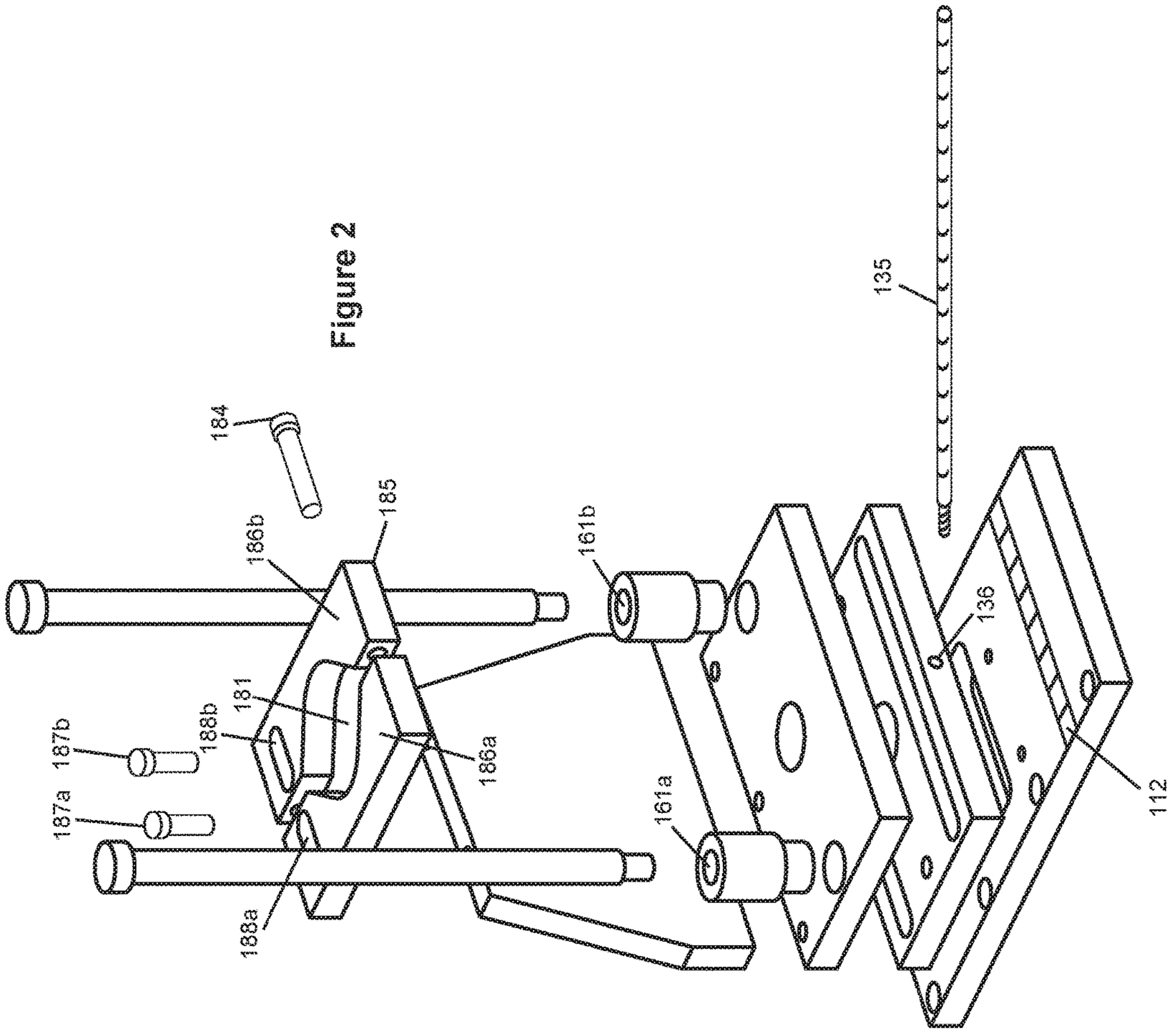


Figure 1g

Figure 2


184
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186b
161b
135
181
188b
187b
186a
136
187a
161a
112
188a

Figure 3a

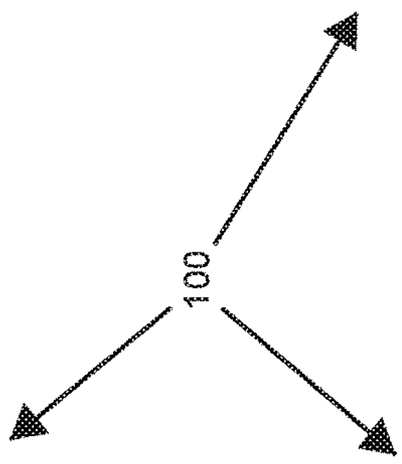


Figure 3b

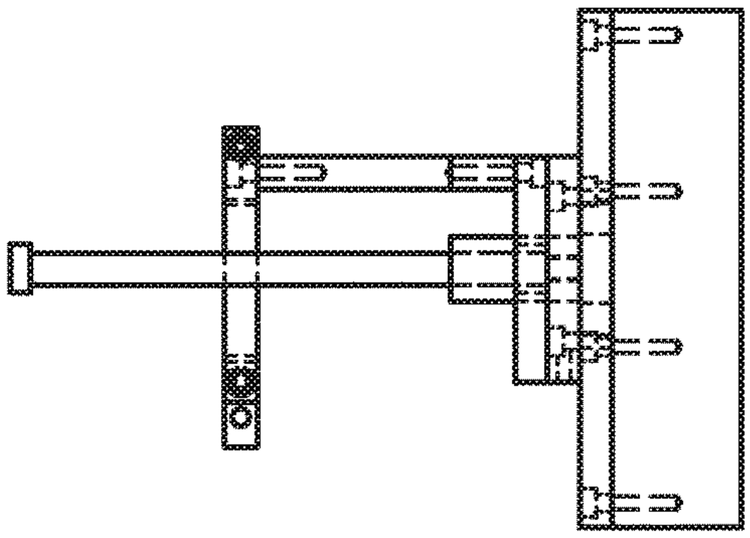
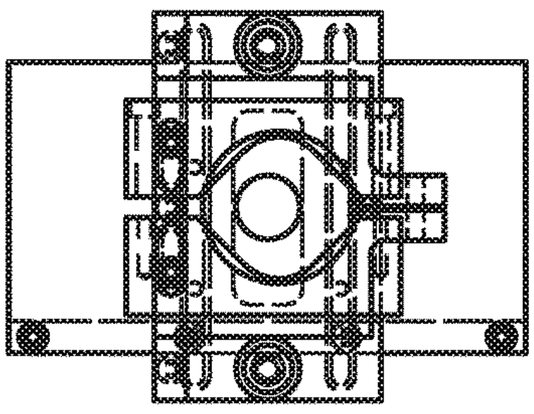
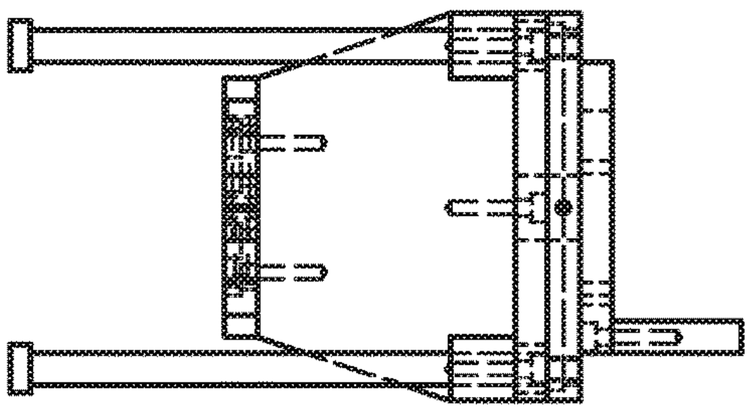


Figure 3c





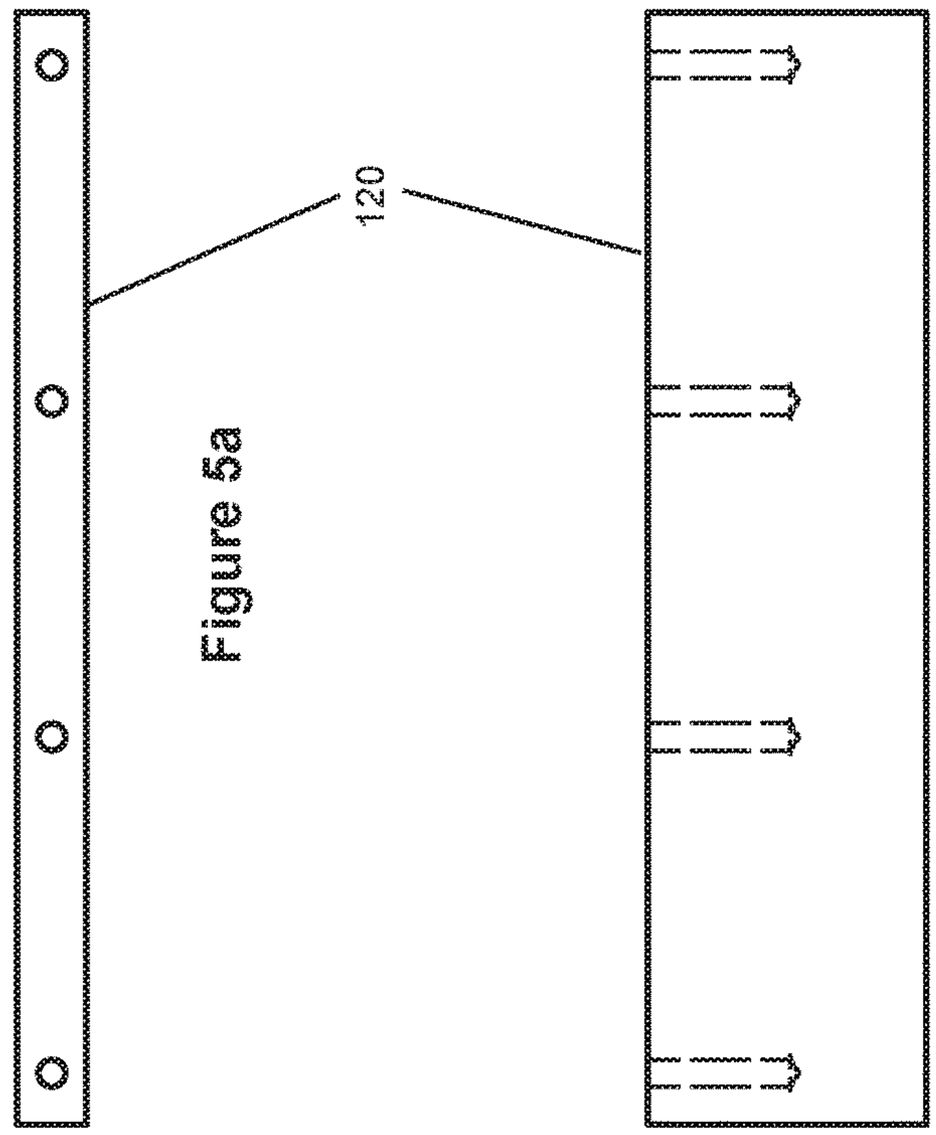


Figure 5a

Figure 5b

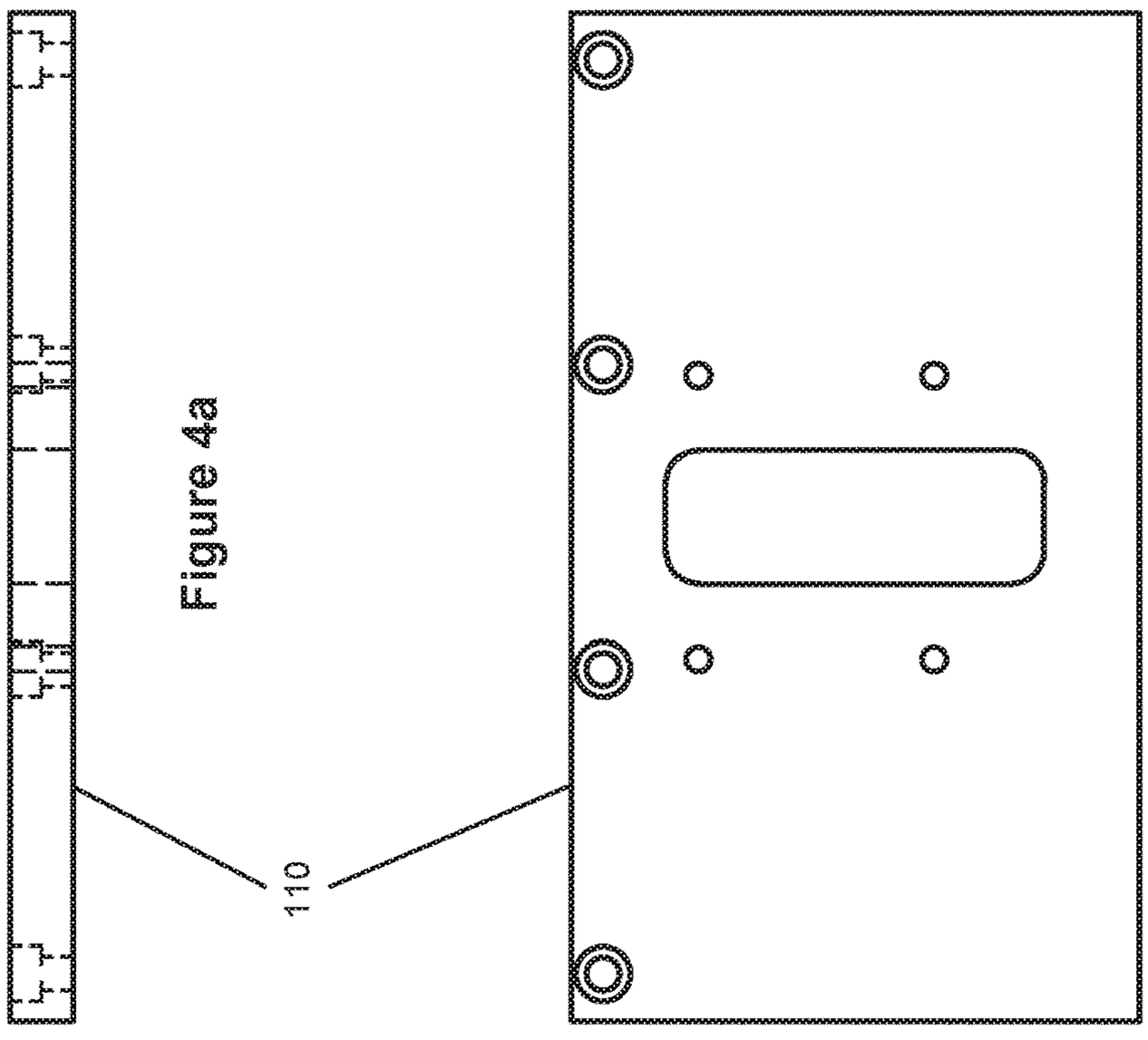


Figure 4a

Figure 4b

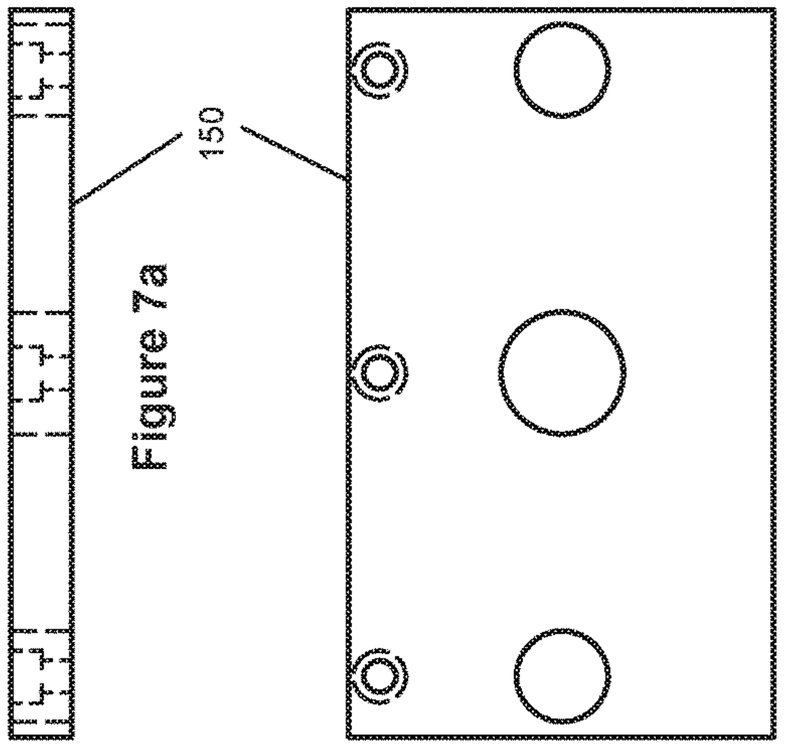


Figure 7a

Figure 7b

Figure 6a

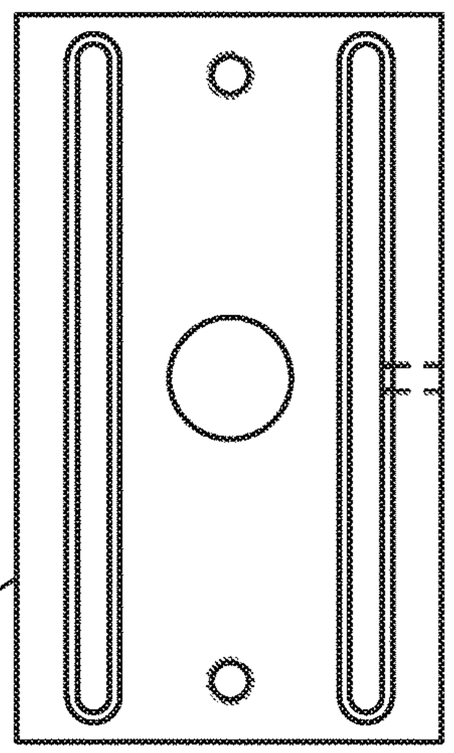


Figure 6b

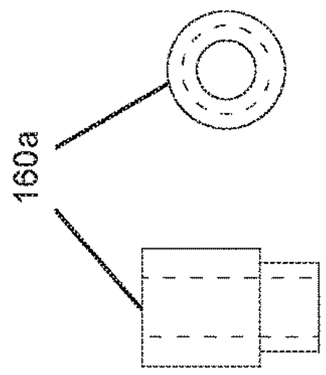


Figure 8b

Figure 8a

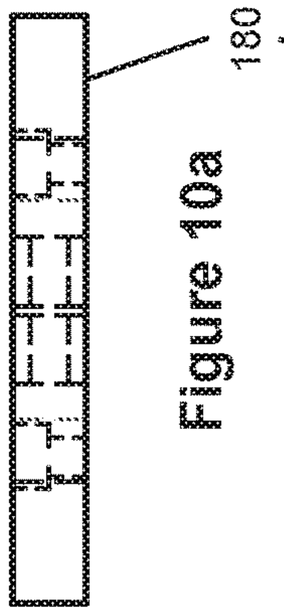
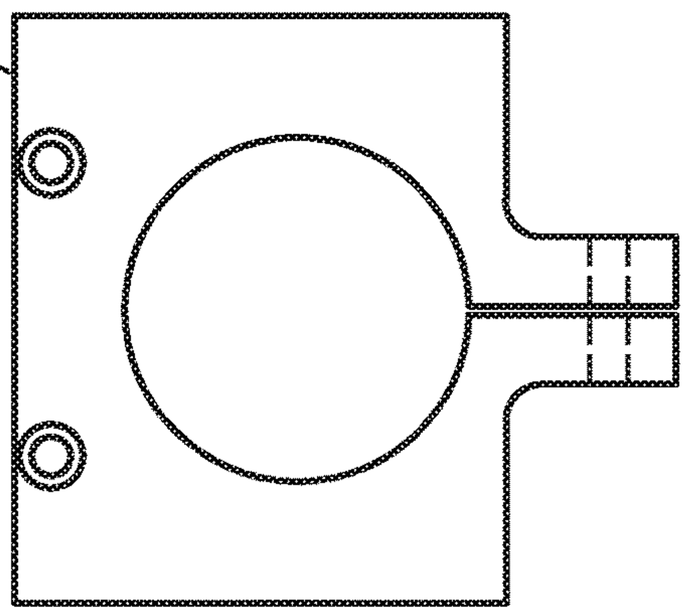


Figure 10a



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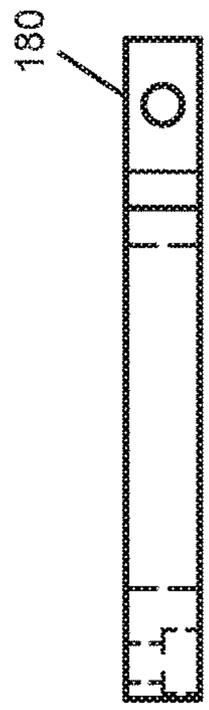

Figure 10c

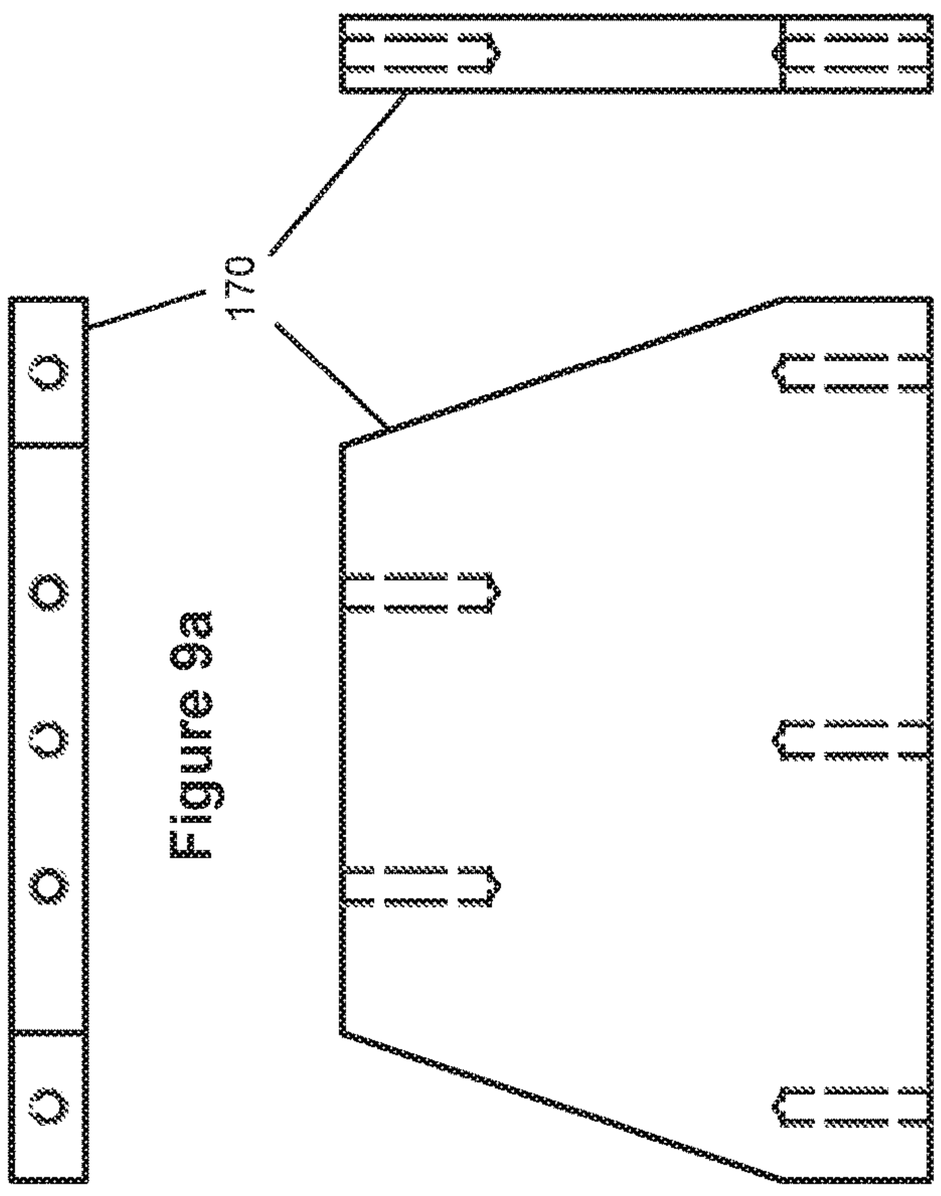

Figure 9a

Figure 9b

Figure 9c

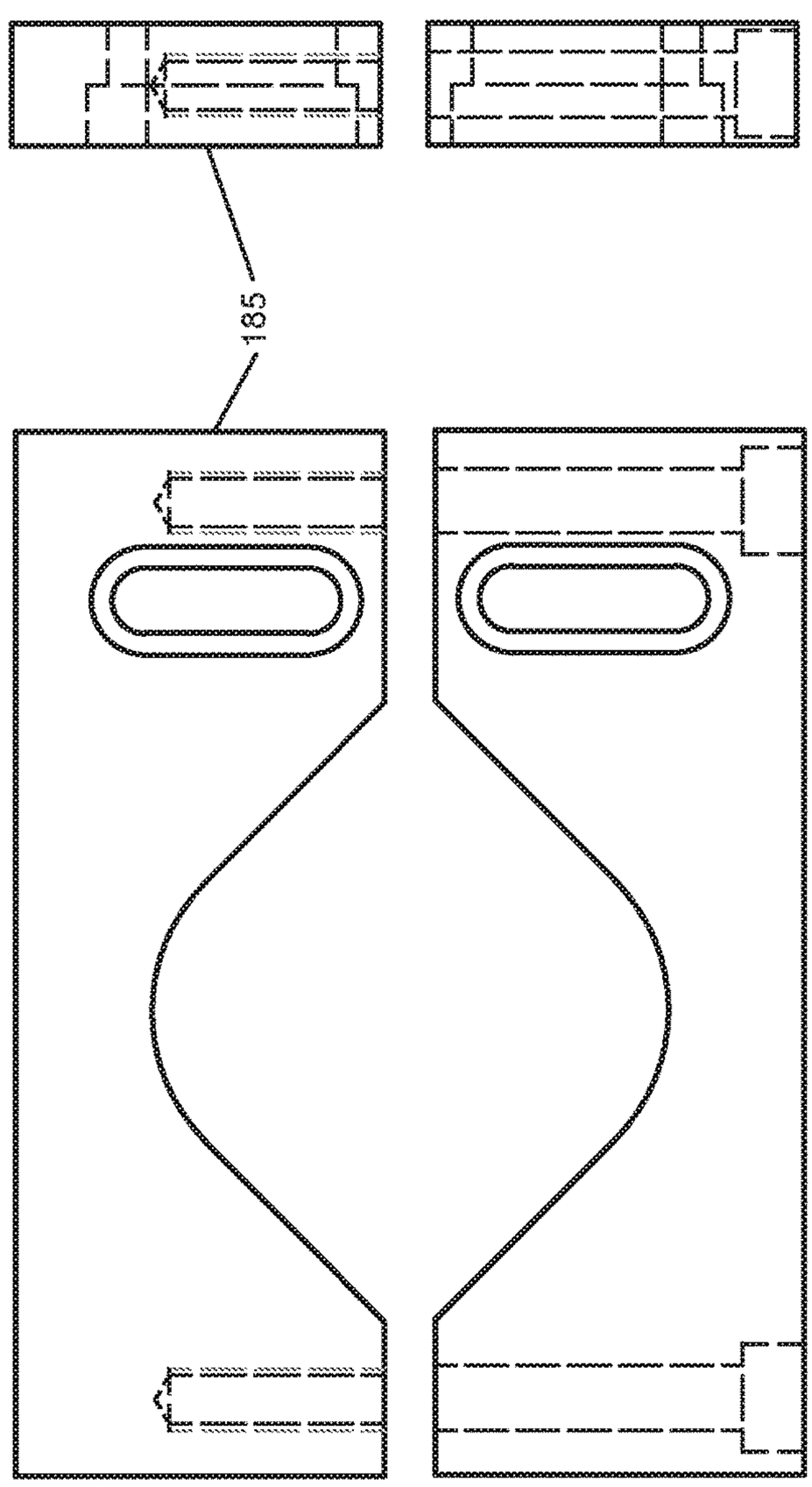

Figure 11a

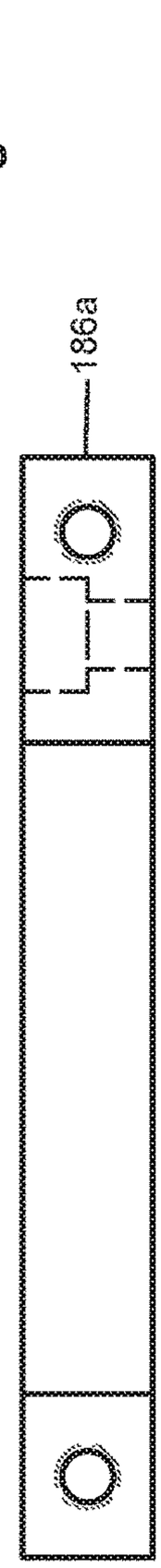

Figure 11c

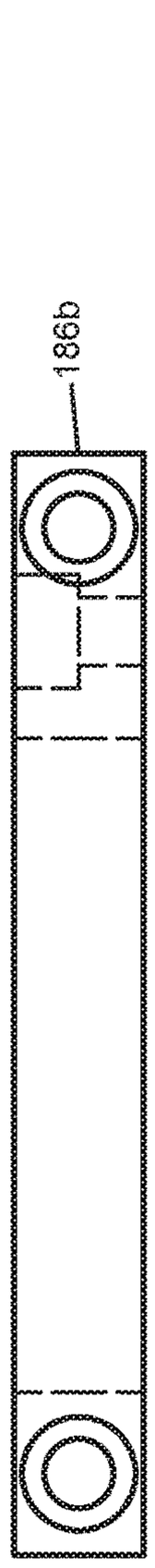

Figure 11d

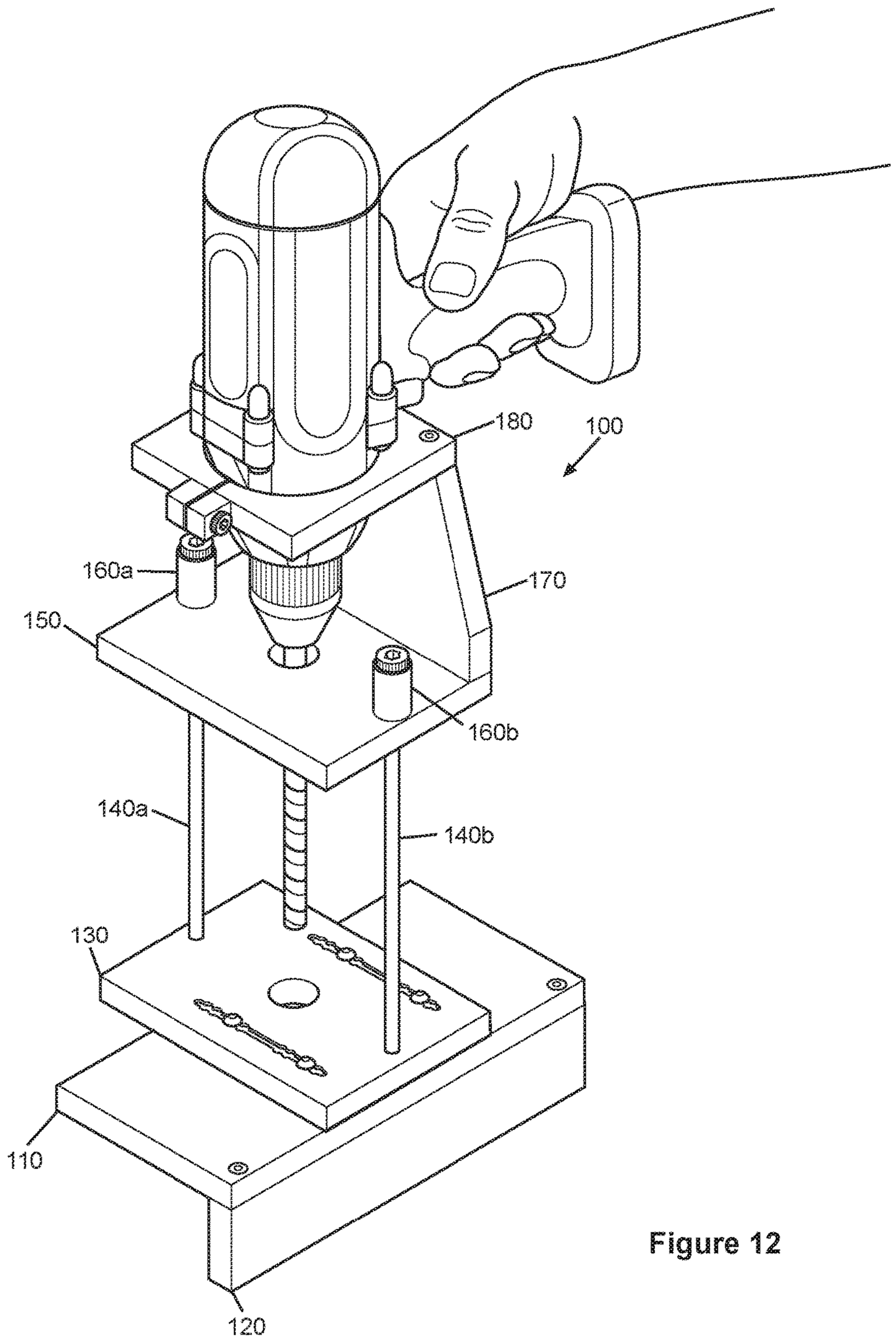

Figure 12

PORTABLE DRILL PRESS

FIELD OF THE INVENTION

The present invention is generally directed to a tool accessory. Specifically, the present invention is directed to a portable stand or support for positioning a portable drill.

BACKGROUND OF THE INVENTION

The present invention is primarily directed to a portable tool support for workers who use portable drills in construction. Portable drills provide significant utility in the field. They allow workers to drill bores for installation of building materials and component fasteners. In some cases, the portable drill can also drive the fasteners. While some building materials may come with pre-drilled bore patterns for assembly, conditions in the field may require alterations to the bore pattern. Other materials may require drilling entirely on the fly. Portable drills also allow workers to drill in difficult-to-access areas or areas with very limited space and movement.

One drawback to using a portable drill is lack of guidance during drilling. While large drill presses can drill perfectly perpendicular, evenly distributed patterns of bores using bulky guidance mechanisms, portable drills lack such guidance mechanisms. An operator must push the portable drill into the building material and manually hold it steady while a drill bit rotates. A tired worker or one with a very powerful or otherwise difficult to control portable drill may inadvertently misalign the portable drill. Furthermore, workers with limited ability to measure drilling areas or workers with limited visual and positioning capability, such as a worker drilling in a cramped or awkward position, may also accidentally misalign the portable drill. Such misalignment can create difficulty when connecting building materials, and may cause damage to the building materials and lead to waste. An improperly angled bore may prevent fasteners from sufficiently penetrating building materials, resulting in unsafe installation and construction.

It is therefore an object of the present invention to provide a portable drill press capable of mounting to multiple different types of portable drills for drilling perpendicular bores into building materials.

SUMMARY OF THE INVENTION

The present invention is directed to a portable drill press apparatus. This apparatus includes a horizontal base plate having an enlarged aperture extending therethrough and a horizontal adjustment plate having an adjustment plate aperture extending therethrough. The adjustment plate is parallel to and releasably connected to the base plate by a plurality of releasable fasteners extending through a plurality of adjustment slots in the adjustment plate. A plurality of guide bolts extends vertically from the adjustment plate through a horizontal guide plate, the guide plate being parallel to the adjustment plate and slidable along the plurality of guide bolts. The guide plate has a guide plate aperture extending therethrough. A vertical back plate interconnects the guide plate and at least one drill clamp, the guide plate and drill clamp extending parallel to each other. The drill clamp has a variably-sized drill aperture extending therethrough.

Another embodiment of the present invention is a portable drill press system incorporating the portable drill press apparatus as above. The system also includes a portable drill having a drill bit extending through the guide plate aperture. At least part of the portable drill is located within the drill aperture

The objects and advantages of the invention will appear more fully from the following detailed description of the preferred embodiment of the invention made in conjunction with the accompanying drawings and photographs.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. **1***a*, **1***b*, **1***c*, **1***d*, **1***e*, **1***f*, and **1***g* illustrate perspective, top, bottom, front, back, right side, and left side views, respectively, of an exemplary embodiment of a portable drill press.

FIG. **2** illustrates a perspective view of an alternate embodiment of the portable drill press.

FIGS. **3***a* **3***b*, and **3***c* illustrate top, front, and right side views, respectively, of the exemplary embodiment of a portable drill press.

FIGS. **4***a* and **4***b* illustrate side and top views, respectively, of an exemplary embodiment of a base plate of the portable drill press.

FIGS. **5***a* and **5***b* illustrate top and side views, respectively, of an exemplary embodiment of an edge plate of the portable drill press.

FIGS. **6***a* and **6***b* illustrate front and top views, respectively, of an exemplary embodiment of an adjustment plate of the portable drill press.

FIGS. **7***a* and **7***b* illustrate front and top views, respectively, of an exemplary embodiment of a guide plate of the portable drill press.

FIGS. **8***a* and **8***b* illustrate side and top views, respectively, of an exemplary embodiment of a bolt sleeve of the portable drill press.

FIGS. **9***a*, **9***b*, and **9***c* illustrate top, front, and side views, respectively, of an exemplary embodiment of a back plate of the portable drill press.

FIGS. **10***a*, **10***b*, and **10***c* illustrate back, top, and left side views, respectively, of an exemplary embodiment of a drill clamp of the portable drill press.

FIGS. **11***a* and **11***b* illustrate top and front views, respectively, of an alternate embodiment of the drill clamp of the portable drill press.

FIGS. **11***c* and **11***d* illustrate right side views of left and right clamp arms, respectively, of an alternate embodiment of the drill clamp of the portable drill press.

FIG. **12** illustrates a perspective view of the exemplary embodiment of a portable drill press as used with a portable drill.

For ease of viewing, not all elements identified in one drawing are necessarily identified in every other drawing.

DETAILED DESCRIPTION OF THE INVENTION

FIGS. **1***a* through **1***g* illustrate perspective, top, bottom, front, back, right side, and left side views, respectively, of an exemplary embodiment of portable drill press **100**. Referring now to the drawings, the present invention is directed to portable drill press **100** for a portable drill terminating in a drill bit D (shown in FIG. **1***c*). Portable drill press **100** includes a base plate **110** removably connected to an optional edge plate **120**. Base plate **110** is parallel to and moveably connected to an adjustment plate **130**. Guide bolts **140***a* and **140***b* extending vertically from adjustment plate **130** slidably connect to a guide plate **150** through bolt sleeves **160***a* and **160***b*, respectively. A back plate **170**

connects guide plate **150** parallel to a drill clamp **180** or an alternate drill clamp **185** (described in further detail in relation to FIG. **2** below). As used in this application, the term "plate" refers to a substantially flat, planar piece of material.

Base plate **110** is a horizontal, rectangular metal plate with an enlarged aperture **111** extending therethrough. During drilling, at least part of the drill bit passes through enlarged aperture **111**, which lies directly above the surface receiving the bore, and extends into the surface. Due to at least one dimension of enlarged aperture **111** that is larger as compared to other apertures located above enlarged aperture **111**, the drill bit may be moved back and forth to accommodate drilling at various locations, as will be shown below. In the exemplary embodiment, enlarged aperture **111** is an oblong aperture with an extended width. In other embodiments, enlarged aperture **111** may be a circular aperture with an enlarged radius.

Optional edge plate **120** is a vertical, rectangular metal plate. Edge plate **120** may be permanently or removably connected to a left, bottom left, right, or bottom right side of base plate **110**. In the exemplary embodiment, edge plate **120** is connected to and extends downwardly from the bottom right side of base plate **110**. Edge plate **120** allows an operator to precisely drill a straight line of bores, all at the same distance from an edge in contact with an inner or outer vertical surface of edge plate **120**. Edge plate **120** also allows the operator to drill rounded surfaces, such as round stock or a convex surface, by providing a second plane (in combination with base plate **110**) to hold portable drill press **100** in place on the rounded surface. In certain embodiments, the operator may remove edge plate **120** in the event that the operator is drilling on a large flat surface, such as a floor or wall, and use other means to ensure a straight line of bores.

Adjustment plate **130** is a horizontal, rectangular metal plate with an adjustment plate aperture **131** extending therethrough. During drilling, the drill bit passes through adjustment plate aperture **131**. Releasable fasteners **132** extending through adjustment slots **133***a* and **133***b* to base plate **110** affix adjustment plate **130** atop base plate **110** at a variety of positions. In the exemplary embodiment of FIG. **1***a*, adjustment slots **133***a* and **133***b* expand and contract at discrete intervals along their length. When contracted, adjustment slots **133***a* and **133***b* are narrower than releasable fasteners **132** to allow adjustment only in such intervals. In other embodiments, adjustment slots **133***a* and **133***b* are unvarying in width to allow adjustment at any interval desired (see FIG. **2**). In certain other embodiments, either adjustment slot **133***a* or adjustment slot **133***b* may have unvarying width, while the other is of the varying width type.

If desired, the operator may remove releasable fasteners **132** to rotate adjustment plate **130** through 180 degrees and adopt an opposite orientation with respect to base plate **110**. This allows edge plate **120** to be positioned on the right or left side relative to drill clamp **180**, eliminating limitations on guidance provided by edge plate **120** and/or the handedness of a person using portable drill press **100**.

Adjustment plate **130** also includes threaded bolt apertures **134***a* and **134***b* which removably receive the threaded ends of guide bolts **140***a* and **140***b*. Guide bolts **140***a* and **140***b* slidably connect to guide plate **150** through bolt sleeves **160***a* and **160***b*, respectively. Guide bolts **140***a* and **140***b* extend through sleeve channels **161***a* and **161***b*, respectively. Bolt stops **141***a* and **141***b* are located at the upper ends of guide bolts **140***a* and **140***b*. Bolt stops **141***a* and **141***b* are wider than sleeve channels **161***a* and **161***b* to prevent the assembly of guide plate **150**, back plate **170**, and drill clamp **180** from falling off of guide bolts **140***a* and **140***b*. Guide bolts **140***a* and **140***b* are removable, allowing replacement with longer or shorter guide bolts **140***a* and **140***b* to accommodate different lengths of drill bits and bores.

Guide plate **150** is a horizontal, rectangular metal plate with a guide plate aperture **151** extending therethrough. During drilling, the drill bit extends through guide plate aperture **151**. Sleeve receivers **152***a* and **152***b* receive the lower ends of bolt sleeves **160***a* and **160***b* in a friction fit.

Back plate **170** is a vertical metal plate. In the exemplary embodiment, the upper end of back plate **170** has a length that matches the length of drill clamp **180**, while the lower end of back plate **170** has a length that matches the length of guide plate **150**. This fully supports both guide plate **150** and drill clamp **180**, while reducing the overall weight and bulk of portable drill press **100**. In the exemplary embodiment, back plate **170** has a half-octagonal configuration of a combined trapezoid and rectangle, with the shorter length being connected to drill clamp **180** and the longer length being connected to guide plate **150**, though other configurations are possible and contemplated.

Drill clamp **180** is a horizontal, rectangular metal plate with a variably-sized drill aperture **181** extending therethrough. During drilling, at least part of the portable drill is held securely within drill aperture **181**. Drill clamp **180** has a length smaller than a length of guide plate **150** to accommodate motion up and down guide bolts **140***a* and **140***b*. Drill clamp **180** is partially split to form clamp flanges **182***a* and **182***b*. Clamp flanges **182***a* and **182***b* may move apart and come together through rotation of a clamp bolt **184** extending through clamp tabs **183***a* and **183***b*. This has the effect of expanding and contracting drill aperture **181** to allow the insertion, clamping, and removal of the portable drill. Because different portable drills may have different sizes and configurations, drill clamp **180** is removable from back plate **170**. Drill clamp **180** may be replaced with another drill clamp **180** with a differently sized or configured drill aperture **181**, or with alternate drill clamp **185**.

FIG. **2** illustrates a perspective view of an alternate embodiment of portable drill press **100** featuring optional measuring indicia **112** and an optional interval rod **135**. FIG. **2** also shows portable drill press **100** with edge plate **120** removed, and with alternate drill clamp **185** replacing drill clamp **180**.

In certain embodiments, a surface of base plate **110** includes a plurality of measuring indicia **112**. Measuring indicia **112** may be incised in or printed on the upper or side surface of base plate **110**, or may be formed on an attached member, such as, but not limited to, a printed polymer tape. Measuring indicia **112** allow the operator to, by way of non-limiting example, precisely determine the distance of a first bore from a floor edge, allowing the operator to set up portable drill press **100** to drill a series of bores in line with the first bore. In certain embodiments, measuring indicia **112** may be placed on multiple locations on base plate **110**.

Interval rod **135** allows the operator to space drilled bores a predetermined distance apart. Interval rod **135** has a threaded end removably located within a threaded interval rod aperture **136** on at least one side of adjustment plate **130**. In the exemplary embodiment, interval rod **135** is marked with length indicia allowing the operator to measure the appropriate distance between bores. In another embodiment, interval rod **135** terminates at the predetermined distance between bores, allowing the operator to visually align interval rod **135** with the last-drilled bore. This embodiment may use multiple interchangeable interval rods **135** having dif-

ferent sizes to drill different lines of bores with different spacings between bores. In yet another embodiment, interval rod **135** has an L-shaped configuration with a horizontal and a vertical leg, allowing the vertical leg to be dropped in the last-drilled bore. This embodiment may also use multiple interchangeable interval rods **135** with different sizes of the horizontal leg to drill different spacings between bores.

Alternate drill clamp **185** features a drill aperture **181** formed by two separate clamp arms **186***a* and **186***b* having concave inner surfaces. During drilling, the portable drill is held securely within drill aperture **181** between clamp arms **186***a* and **186***b*. Each of clamp arms **186***a* and **186***b* connects directly to back plate **170** using clamp fasteners **187***a* and **187***b*, respectively, extending through clamp slots **188***a* and **188***b*, again respectively. Clamp slots **188***a* and **188***b* allow precise incremental adjustment of the position of clamp arms **186***a* and **186***b* to accommodate a wide variety of portable drill sizes and configurations. In this embodiment, clamp bolt **184** extends directly through clamp arms **186***a* and **186***b* to provide additional clamping force on the portable drill. Alternate drill clamp **185** can be used as a replacement for drill clamp **180**, or used of its own accord in portable drill press **100** if, by way of non-limiting example, an operator anticipated fitting a wide variety of drills to portable drill press **100**. In certain embodiments, portable drill press **100** includes multiple interchangeable drill clamps **180** and/or alternate drill clamps **185**. Each of the interchangeable drill clamps **180** and/or alternate drill clamps **185** has a different dimension or different configuration from another to ensure a wide variety of drills.

FIGS. **3***a* through **3***c* illustrate additional top, front, and right side views, respectively, of the exemplary embodiment of portable drill press **100** as shown in FIG. **1**. FIGS. **4***a* through **11***d* illustrate multiple view of various components of portable drill press **100**. FIGS. **4***a* and **4***b* illustrate side and top views, respectively, of base plate **110**. FIGS. **5***a* and **5***b* illustrate top and side views, respectively, of edge plate **120**. FIGS. **6***a* and **6***b* illustrate front and top views, respectively, of adjustment plate **130**. FIGS. **7***a* and **7***b* illustrate front and top views, respectively, of guide plate **150**. FIGS. **8***a* and **8***b* illustrate side and top views, respectively, of bolt sleeve **160***a*. FIGS. **9***a*, **9***b*, and **9***c* illustrate top, front, and side views, respectively, of back plate **170**. FIGS. **10***a*, **10***b*, and **10***c* illustrate back, top, and left side views, respectively, of drill clamp **180**. FIGS. **11***a* and **11***b* illustrate top and front views, respectively, of alternate drill clamp **185**. FIGS. **11***c* and **11***d* illustrate right side views of left and right clamp arms **186***a* and **186***b*, respectively.

FIG. **12** illustrates a perspective view of the exemplary embodiment of a portable drill press as used with a portable drill. In use, the operator places base plate **110** of portable drill press **100** on the surface to be drilled. If used, edge plate **120** is aligned with a side or curved surface. The operator inserts the drill bit and part of the portable drill through drill aperture **181** until the drill bit reaches a proper drilling depth, then tightens drill clamp **181** or alternate drill clamp **185** to hold the portable drill in place. Next, the operator releases releasable fasteners **132**, moves adjustment plate **130** laterally across base plate **110** until adjustment plate aperture **131** is centered on the location to be drilled, and fastens down releasable fasteners **132**. Lateral movement of adjustment plate **130** may be guided by measuring indicia **120** or some other measurement means.

The operator may then drill a hole by activating the portable drill and moving guide plate **150** down guide bolts **140** until guide plate **150** contacts bolt sleeves **160***a* and **160***b*. The operator can then lift the portable drill up until it disengages from the surface. For a series of bores, the operator moves portable drill press **100** a specific length along the surface and repeats the process. Movement along the surface may be guided by interval rod **135** or some other measurement means.

Any version of any component or method step of the invention may be used with any other component or method step of the invention. The elements described herein can be used in any combination whether explicitly described or not. All combinations of method steps as used herein can be performed in any order, unless otherwise specified or clearly implied to the contrary by the context in which the referenced combination is made.

As used herein, the singular forms "a," "an," and "the" include plural referents unless the content clearly dictates otherwise.

Numerical ranges as used herein are intended to include every number and subset of numbers contained within the range, whether specifically disclosed or not. Further, these numerical ranges should be construed as providing support for a claim directed to any number of subset of numbers in that range. For example, a disclosure of from 1 to 10 should be construed as supporting a range of from 2 to 8, from 3 to 7, from 5 to 6, from 1 to 9, from 3.6 to 4.6, from 3.5 to 9.9, and so forth.

All patents, patent publications, and peer-reviewed publications (i.e., "references") cited herein are expressly incorporated by reference in their entirety to the same extent as if each individual reference were specifically and individually indicated as being incorporated by reference. In case of conflict between the present disclosure and the incorporated reference, the patent disclosure controls.

The devices, methods, compounds and composition of the present invention can comprise, consist of, or consist essentially of the essential elements and limitations described herein, as well as any additional or optional steps, ingredients, components, or limitations described herein or otherwise useful in the art.

While this invention may be embodied in many forms, what is described in detail herein is a specific preferred embodiment of the invention. The present disclosure is an exemplification of the principles of the invention is not intended to limit the invention to the particular embodiments illustrated. It is to be understood that this invention is not limited to the particular examples, process steps, and materials disclosed herein as such process steps and materials may vary somewhat. It is also understood that the terminology used herein is used for the purpose of describing particular embodiments only and is not intended to be limiting since the scope of the present invention will be limited to only the appended claims and equivalents thereof.

What is claimed is:

1. A portable drill press apparatus, comprising:

a horizontal base plate having an enlarged aperture extending therethrough;

a horizontal adjustment plate having an adjustment plate aperture extending therethrough, the adjustment plate parallel to and releasably connected to the base plate by a plurality of releasable fasteners extending through a plurality of adjustment slots in the adjustment plate, wherein at least one of the plurality of adjustment slots expands and contracts at discrete intervals along its length, such that when contracted the width of at least one of the plurality of adjustment slots is narrower than the width of the plurality of releasable fasteners;

a plurality of guide bolts extending vertically from the adjustment plate through a horizontal guide plate, the

guide plate having a guide plate aperture extending therethrough, the guide plate being parallel to the adjustment plate and slidable along the plurality of guide bolts;

a vertical back plate interconnecting the guide plate and at least one drill clamp, the guide plate and drill clamp extending parallel to each other, the drill clamp having a variably-sized drill aperture extending therethrough.

2. The apparatus of claim **1**, further comprising a vertical edge plate extending downwardly from one side of the base plate.

3. The apparatus of claim **2**, wherein the edge plate is removable from the base plate.

4. The apparatus of claim **1**, wherein at least one of the plurality of adjustment slots does not vary in width along its length.

5. The apparatus of claim **1**, wherein the plurality of guide bolts are removable and replaceable with another plurality of guide bolts.

6. The apparatus of claim **1**, wherein each of the plurality of guide bolts extends through a sleeve channel in a bolt sleeve connected to the guide plate.

7. The apparatus of claim **6**, wherein each of the plurality of guide bolts has a bolt stop on its upper end, the bolt stop having a width greater than the width of the sleeve channel.

8. The apparatus of claim **1**, wherein the drill clamp has a length smaller than a length of the guide plate.

9. The apparatus of claim **1**, wherein the at least one drill clamp comprises a plurality of interchangeable drill clamps, each of the plurality of interchangeable drill clamps having a different dimension or different configuration from another of the plurality of interchangeable drill clamps.

10. The apparatus of claim **1**, further comprising a plurality of measuring indicia on a surface of the base plate.

11. The apparatus of claim **1**, further comprising an interval rod removably extending from an interval rod aperture on a horizontal surface of the adjustment plate.

12. A portable drill press apparatus, comprising:

a horizontal base plate having an enlarged aperture extending therethrough;

a horizontal adjustment plate having an adjustment plate aperture extending therethrough, the adjustment plate parallel to and releasably connected to the base plate by a plurality of releasable fasteners extending through a plurality of adjustment slots in the adjustment plate;

a plurality of guide bolts extending vertically from the adjustment plate through a horizontal guide plate, the guide plate having a guide plate aperture extending therethrough, the guide plate being parallel to the adjustment plate and slidable along the plurality of guide bolts;

a vertical back plate interconnecting the guide plate and at least one drill clamp, the guide plate and drill clamp extending parallel to each other, the drill clamp having a variably-sized drill aperture extending therethrough, wherein the back plate has a half-octagonal configuration, with the shorter length being connected to the drill clamp and the longer length being connected to the guide plate.

13. The apparatus of claim **1**, wherein the drill clamp is a partially split plate forming a pair of clamp flanges extending around the drill aperture, each of the pair of clamp flanges having a clamp tab extending therefrom.

14. The apparatus of claim **13**, wherein the pair of clamp flanges are interconnected by a clamp bolt extending therethrough.

15. A portable drill press apparatus, comprising:

a horizontal base plate having an enlarged aperture extending therethrough;

a horizontal adjustment plate having an adjustment plate aperture extending therethrough, the adjustment plate parallel to and releasably connected to the base plate by a plurality of releasable fasteners extending through a plurality of adjustment slots in the adjustment plate;

a plurality of guide bolts extending vertically from the adjustment plate through a horizontal guide plate, the guide plate having a guide plate aperture extending therethrough, the guide plate being parallel to the adjustment plate and slidable along the plurality of guide bolts;

a vertical back plate interconnecting the guide plate and at least one drill clamp, the guide plate and drill clamp extending parallel to each other, the drill clamp having a variably-sized drill aperture extending therethrough, wherein the drill clamp is a pair of clamp arms, each of the pair of clamp arms having a concave inner surface forming one half of the drill aperture, each of the clamp arms connecting directly to the back plate through a removable clamp fastener extending through a clamp slot extending through the clamp arm.

16. The apparatus of claim **15**, wherein the pair of clamp arms are interconnected by a clamp bolt extending therethrough.

17. A

portable drill press apparatus, comprising:

a horizontal base plate having an enlarged aperture extending therethrough,

a horizontal adjustment plate having an adjustment plate aperture extending therethrough, the adjustment plate parallel to and releasably connected to the base plate by a plurality of releasable fasteners extending through a plurality of adjustment slots in the adjustment plate,

a plurality of guide bolts extending vertically from the adjustment plate through a horizontal guide plate, the guide plate having a guide plate aperture extending therethrough, the guide plate being parallel to the adjustment plate and slidable along the plurality of guide bolts,

a vertical back plate interconnecting the guide plate and at least one drill clamp, the guide plate and drill clamp extending parallel to each other, the drill clamp having a variably-sized drill aperture extending therethrough; and

a portable drill having a drill bit extending through the guide plate aperture, at least part of the portable drill being located within the variably-sized drill aperture, wherein the portable drill is clamped within the variably-sized drill aperture by a clamp bolt extending through a pair of clamp arms and by a plurality of clamp fasteners extending though a pair of clamp slots in the pair of clamp arms.

18. The portable drill press apparatus of claim **17**, wherein the portable drill is clamped within the variably-sized drill aperture by a clamp bolt extending through a pair of clamp tabs extending from a plurality of clamp flanges.

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